## REMARKS

Claims 1-20 are pending. Claims 2, 4, 5, 9 and 11-14 have been amended. In view of the above amendments and the following remarks, reconsideration and allowance of the application are respectfully requested.

### Claim Objections

Claims 2-5 and 9-14 were objected to because each and every occurrence of "faraday" should be "Faraday."

Applicants appreciate the Examiner calling this error to their attention. Accordingly, claims 2, 4, 5, 9 and 11-14 have been amended to capitalize the spelling of "Faraday" in each and every occurrence in claims 2-5 and 9-14. The Applicants have adopted a clerical amendment of dependent claim 12 in line 3 to add the word "wedge" following "birefringent." The second birefringent wedge is identified in the base independent claim 9. No new matter has been added.

The Applicants respectfully request withdrawal of this claim objection and favorable consideration and allowance of all claims.

### Claim Rejections -35 U.S.C. §103(a)

Claims 1-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,566,259 to Pan et al.

The Applicants respectfully traverse this rejection.

The present application discloses and claims a dual-stage optical isolator where the second stage is rotated 90° with respect to the first stage in order to facilitate manufacture and fabrication of the isolator. Crystals used to fabricate a dual-stage isolator are typically 22.5° wedges and, therefore, should be aligned at angles of 45° relative to each other. It is the difficulty of aligning the crystals at 45° with respect to one another that may be avoided in the present application. *See,* page 2, lines 11-16.

As explained in Application's specification, because the second stage 302 of the present application is rotated 90° both mechanically and optically with respect to the first stage 200, the first ray 310 represents the o-ray (shown as o') with respect to the second stage 302, and the second ray 320 represents the e-ray (shown as e') with respect to the second isolator core. *See,* page 8, lines 3-7, Fig. 2 and claim 1.

In contrast, Pan et al. does not teach both a mechanical and an optical rotation of the second stage with respect to the first stage of an optical isolator. Pan et al. does not teach or suggest that the second stage of a dual-stage optical isolator is mechanically and optically rotated 90°. The Examiner does not point to a specific teaching that suggests a 90° mechanical rotation of the second stage with respect to the first stage of a dual-stage optical isolator.

A finding of obviousness requires that there be some suggestion in the prior art of the subject matter as a whole. The Pan et al. reference does not discuss the relative position of the stages and only shows the stages in a non-rotated position. *See, for example,* Figures 1 and 2 and the description of the assembly at col. 2, line 65 to col. 3, line 22.

Furthermore, the applicant has discovered a solution to a problem that is not even discussed in the Pan et al. reference, the mechanical and optical rotation of the two stages to avoid the error-prone 45° alignment discussed above. There is no specific teaching or suggestion that the two stages of the dual-stage optical isolator are mechanically rotated 90° with respect to one another. Therefore, there is simply no suggestion to modify the disclosure of the Pan et al. patent as suggested by the Office Action to obtain the claimed subject matter.

For the above reasons, the Applicants respectfully request withdrawal of the 35 U.S.C. 103(a) rejection of claims 1-20 each of which incorporates the limitation that the second stage is rotated 90° with respect to the first stage.

Applicants believe that there are no fees due. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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**Version with markings to show changes made**

In the claims:

Claims 2, 4, 5, 9 and 11-14 have been amended as follows:

2. (Amended) The optical isolator of claim1, wherein said first stage comprises:

a first birefringent wedge having an optic axis and a first wedge angle;

a second birefringent wedge having an optic axis 45° apart from said optic axis of said first birefringent wedge and a second wedge angle; and

a first [faraday] Faraday rotator disposed between said first and said second wedges.

4. (Amended) The optical isolator of claim 3, wherein said first [faraday] Faraday rotator is configured to rotate the polarization of applied light by 45°.

5. (Amended) The optical isolator of claim 4, wherein said second stage comprises:

a third birefringent wedge having an optic axis 90° apart from the second birefringent wedge and a third wedge angle;

a fourth birefringent wedge having an optic axis 45° apart from the third birefringent wedge and a fourth wedge angle; and

a second [faraday] Faraday rotator disposed between said third and fourth wedges for rotating a polarization plane by 45°.

9. (Amended) The optical isolator of claim 8, wherein said first stage comprises:

a first birefringent wedge having an optic axis and a first wedge angle;

a second birefringent wedge having an optic axis 45° apart from said first birefringent wedge and a second wedge angle; and

a first [faraday] Faraday rotator disposed between said first and second wedges having a polarization plane rotation of 45°.

11. (Amended) The optical isolator of claim 10, wherein said first [faraday] Faraday rotator is configured to rotate the polarization of applied light by 45°.

12. (Amended) The optical isolator of claim 9, wherein said second stage comprises:

a third birefringent wedge having an optic axis 90° apart from said second birefringent wedge and a third wedge angle;

a fourth birefringent wedge having an optic axis 45° apart from said third birefringent wedge and a fourth wedge angle; and

a second [faraday] Faraday rotator disposed between said third and fourth wedges having polarization plane rotating angle of 45°.

13. (Amended) The optical isolator of claim 12, wherein said second [faraday] Faraday rotator is configured to rotate the polarization of applied light by 45°.

14. (Amended) The optical isolator of claim 13, wherein a rotation direction of said first and second [faraday] Faraday rotators is at least one of a same and opposite direction.